CLAIMS

What is claimed is:

1.   A method for handling a roam request at a first switch, the roam request sent by a second

switch and containing information about a client that is roaming to the second switch, the method

comprising:

determining if the first switch is a home agent for the client;

removing information regarding the client from the first switch if the first switch is not a

home agent for the client;

tunneling traffic for the client to the second switch if the first switch is a home agent for

the client; and

sending a roam reply to the second switch.

2.   The method of claim 1, wherein said roam reply contains network configuration

information regarding the client.

3.   The method of claim 1, further comprising:

discovering if the first switch is the same as the second switch;

performing said determining, removing, and tunneling only if the first switch is not the

same as the second switch;

setting the first switch as the foreign agent if the first switch is the same as the second

switch; and

updating a virtual network tag corresponding to the client in a data structure controlled by

the first switch if the first switch is the same as the second switch.

4.   The method of claim 3, wherein said updating includes updating a virtual local area

network (VLAN) tag corresponding to the client with a new VLAN tag corresponding to a new

VLAN to which the client has roamed.

5.   The method of claim 3, further comprising:

        ascertaining if the roaming being attempted is layer 2 or layer 3 roaming;

        executing said performing and setting only if the roaming being attempted is layer 3

roaming.

        removing information regarding the client from a data structure controlled by the first

switch.

6.   The method of claim 5, further comprising:

        checking if the client is known to the first switch;

        performing said ascertaining, executing, and removing only if the client is known to the

first switch.

7.   The method of claim 1, wherein said roam reply indicates failure if something went

wrong during the process, otherwise it indicates success.

8.   The method of claim 1, wherein the roam request is an Inter Switch Roaming Protocol

(ISRP) roam request.

9.   A method for responding to client roaming at a switch, the method comprising:

receiving a move request from an access point associated with the switch; and

sending a roam request to all peer switches in the same mobility domain as the switch,

including itself.

10.   The method of claim 9, wherein said move request is a Switch Access Point Protocol

(SAPP) move request.

11.   The method of claim 9, wherein said roam request is an ISRP roam request.

12.   A method for handling a roam reply at a switch, the roam reply having information

regarding a client that is roaming to the switch, the method comprising:

determining if the roam reply indicates that the handling of a roam request was

successful;

sending a reply to a corresponding access point indicating failure if the handling of said

roam request was not successful;

setting the switch as a Foreign Agent for the client if the handling of said roam request

was successful;

switching a router designated by the client with a default router for the switch if the

handling of said roam request was successful; and

sending a move reply to said corresponding access point if the handling of said roam

request was successful.

13. The method of claim 12, wherein said switching includes:

trapping all address resolution protocol (ARP) packets from the client; and

sending an ARP reply to the client with a default router address for the switch.

14. The method of claim 12, wherein said move reply includes a new VLAN identification.,

15. The method of claim 12, wherein said move reply is a SAPP move reply.

16. An apparatus for handling a roam request at a first switch, the roam request sent by a second switch and containing information about a client that is roaming to the second switch, the apparatus comprising:

a first switch home agent determiner;

a client information remover coupled to said first switch home agent determiner;

a second switch traffic tunneler coupled to said first switch home agent determiner; and

a roam reply sender coupled to said client information remover and to said second switch traffic tunneler.

17. The apparatus of claim 16, further comprising:

a first switch second switch identical discoverer coupled to said first switch home agent determiner, said client information remover, and said second switch traffic tunneler;

a first switch foreign agent setter coupled to said first switch second switch identical discoverer; and

a virtual network tag updater coupled to said first switch foreign agent setter.

18.   The apparatus of claim 17, further comprising:

a layer 2 or layer 3 roaming ascertainer coupled to said first switch second switch

identical discoverer, said first switch foreign agent setter, and said virtual network tag updater;

and

a client information remover coupled to said layer 2 or layer 3 roaming ascertainer.

19.   The apparatus of claim 18, further comprising:

a known client checker coupled to said layer 2 or layer 3 roaming ascertainer and to said

client information remover.

20.   An apparatus for responding to client roaming at a switch, the apparatus comprising:

a move request receiver; and

a roam request peer switch sender coupled to said move request receiver.

21.   An apparatus for handling a roam reply at a switch, the roam reply having information

regarding a client that is roaming to the switch, the apparatus comprising:

a successful roam reply determiner;

a failure reply access point sender coupled to said successful roam reply determiner;

a foreign agent switch setter coupled to said successful roam reply determiner;

a designated router switcher coupled to said foreign agent switch setter; and

a move reply access point sender coupled to said successful roam reply determiner.

22.   The apparatus of claim 21, wherein said designated router switcher includes:

an address resolution protocol packet trapper; and

an address resolution protocol reply sender coupled to said address resolution protocol

packet trapper.

23.   An apparatus for handling a roam request at a first switch, the roam request sent by a

second switch and containing information about a client that is roaming to the second switch, the

apparatus comprising:

means for determining if the first switch is a home agent for the client;

means for removing information regarding the client from the first switch if the first

switch is not a home agent for the client;

means for tunneling traffic for the client to the second switch if the first switch is a home

agent for the client; and

means for sending a roam reply to the second switch.

24.   The apparatus of claim 23, wherein said roam reply contains network configuration

information regarding the client.

25.   The apparatus of claim 23, further comprising:

means for discovering if the first switch is the same as the second switch;

means for performing said determining, removing, and tunneling only if the first switch is

not the same as the second switch;

means for setting the first switch as the foreign agent if the first switch is the same as the

second switch; and

means for updating a virtual network tag corresponding to the client in a data structure

controlled by the first switch if the first switch is the same as the second switch.

26.   The apparatus of claim 25, wherein said means for updating includes means for updating

a virtual local area network (VLAN) tag corresponding to the client with a new VLAN tag

corresponding to a new VLAN to which the client has roamed.

27.   The apparatus of claim 25, further comprising:

means for ascertaining if the roaming being attempted is layer 2 or layer 3 roaming;

means for executing said performing and setting only if the roaming being attempted is

layer 3 roaming.

means for removing information regarding the client from a data structure controlled by

the first switch.

28.   The apparatus of claim 27, further comprising:

means for checking if the client is known to the first switch; and

means for performing said ascertaining, executing, and removing only if the client is

known to the first switch.

29.   The apparatus of claim 23, wherein said roam reply indicates failure if something went

wrong during the process, otherwise it indicates success.

30.   The apparatus of claim 23, wherein the roam request is an ISRP roam request.

31.   An apparatus for responding to client roaming at a switch, the apparatus comprising:

means for receiving a move request from an access point associated with the switch; and

means for sending a roam request to all peer switches in the same mobility domain as the

switch, including itself.

32.   The apparatus of claim 31, wherein said move request is a SAPP move request.

33.   The apparatus of claim 31, wherein said roam request is an ISRP roam request.

34.   An apparatus for handling a roam reply at a switch, the roam reply having information

regarding a client that is roaming to the switch, the apparatus comprising:

means for determining if the roam reply indicates that the handling of a roam request was

successful;

means for sending a reply to a corresponding access point indicating failure if the

handling of said roam request was not successful;

means for setting the switch as a Foreign Agent for the client if the handling of said roam

request was successful;

means for switching a router designated by the client with a default router for the switch

if the handling of said roam request was successful; and

means for sending a move reply to said corresponding access point if the handling of said

roam request was successful.

35.   The apparatus of claim 33, wherein said means for switching includes:

    means for trapping all address resolution protocol (ARP) packets from the client; and

    means for sending an ARP reply to the client with a default router address for the switch.

36.   The apparatus of claim 33, wherein said move reply includes a new VLAN

identification.,

37.   The apparatus of claim 33, wherein said move reply is a SAPP move reply.

38.   A program storage device readable by a machine, tangibly embodying a program of

instructions executable by the machine to perform a method for handling a roam request at a first

switch, the roam request sent by a second switch and containing information about a client that is

roaming to the second switch, the method comprising:

    determining if the first switch is a home agent for the client;

    removing information regarding the client from the first switch if the first switch is not a

home agent for the client;

    tunneling traffic for the client to the second switch if the first switch is a home agent for

the client; and

    sending a roam reply to the second switch.

39.   A program storage device readable by a machine, tangibly embodying a program of

instructions executable by the machine to perform a method for responding to client roaming at a

switch, the method comprising:

receiving a move request from an access point associated with the switch; and

sending a roam request to all peer switches in the same mobility domain as the switch, including itself.

40.   A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for handling a roam reply at a switch, the roam reply having information regarding a client that is roaming to the switch, the method comprising:

determining if the roam reply indicates that the handling of a roam request was successful;

sending a reply to a corresponding access point indicating failure if the handling of said roam request was not successful;

setting the switch as a Foreign Agent for the client if the handling of said roam request was successful;

switching a router designated by the client with a default router for the switch if the handling of said roam request was successful; and

sending a move reply to said corresponding access point if the handling of said roam request was successful.